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Carpenter Ants: Insect Pests of Wood Products



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Carpenter ants, *Camponotus* spp. (Hymenoptera: Formicidae), are among the largest members of the ant family in the United States. Under natural conditions, nests can be found in rotting logs, stumps, or occasionally in damp heartwood of live trees. However, they may also construct their nests in house timbers or other manmade structures where wood becomes moist. Occasionally, they are found tunneling into Styrofoam insulation. Well-established ant colonies may cause structural damage in homes requiring extensive repairs. Carpenter ants are also a nuisance when invading homes, crawling over kitchen surfaces and getting into food.

Carpenter ants may be active indoors during spring and summer foraging for food where the favored foods are sweet or fatty fare such as syrup or other domestic foods. If these are not available, the ants will feed on dead or living insects or other types of organic material. If more than 20 ants are found in a home, especially in the winter months, the infestation is most likely within the home and needs to be treated.

Description and Life History

Carpenter ants are social insects and live in colonies made up of three castes: (1) “swarmers”, winged females, up to $\frac{3}{4}$ -inch long, and much smaller winged males; (2) a wingless queen, which never leaves the nest and spends her entire life laying eggs; and (3) workers, of which there are major workers, about $\frac{1}{2}$ -inch long, that guard the colony and forage for food, and minor workers, $\frac{1}{4}$ -inch long, that care for the queen, eggs, and developing larvae.

Queens are generally black while workers will either have some red or brown on their legs or body.

Carpenter ants have a smoothly rounded arched shape to the top of the thorax, elbowed antennae, and constricted waists with a single node between the thorax



Figure 1. *Winged female and a much smaller male carpenter ant.*

and abdomen. Workers have a large head and small thorax, while swarmers have a smaller head and larger thorax to accommodate flight muscles. Swarmer wings are long, with the forewing longer than the hindwing, clear or brownish with prominent veins (Figure 1).

Swarmers emerge from mature colonies usually in May and June. Males die after mating but the newly fertilized females, which are mated for life, either reestablish an old colony or establish a new satellite colony in a small cavity in down logs or stumps or in deteriorating moist wood. The new queen loses her wings and lays 15 to 20 eggs over the next 15 days. Eggs are about $\frac{1}{8}$ -inch long, oval, and cream colored.

Eggs hatch after 24 days and the larvae emerge. Larvae are legless and grub-like with their size varying according to their ultimate adult form (i.e. swarmer, worker, etc.). Larvae pupate in tough, tan-colored, silken cocoons often erroneously referred to as "ant eggs." The larval stage is usually completed in 21 days and the pupal stage

completed 21 days later. However, cold winter weather may delay the life cycle.

All eggs produced in the first three years become sterile female workers. These workers assume the duties of collecting food, feeding the queen, excavating galleries to enlarge the nest, and tending the eggs, larvae, and pupae of the next generation. Workers are able to forage for food up to 200 yards from the nest and although they do not sting, their bite can be painful. Colonies mature and begin to produce swarmers in three to six years. A mature colony has 2,000 to 4,000 individuals and will produce 200 to 400 winged swarmers each year. There is normally only one functioning wingless queen in a colony, and she generally lives and produces young for up to 15 years.

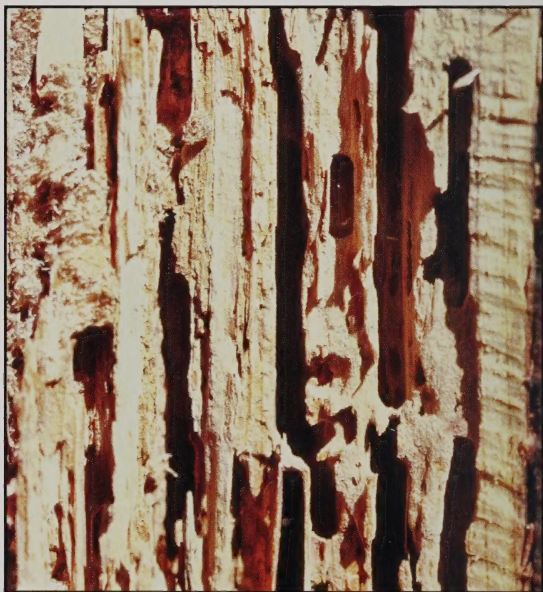


Figure 2. *Advanced carpenter ant damage.*

Damage Caused

Carpenter ants do not eat wood, but excavate galleries to rear their young preferring moist (not wet), deteriorating wood that may be found in existing cavities or void areas in structures. Nests are commonly found in porch pillars, roofs, windowsills, and structural wood in contact with soil. Workers cut galleries in the wood, often extending into adjacent sound wood, expanding the nest size for the enlarging colony. Galleries are irregular, usually excavated with the wood grain (Figure 2); the walls are smooth and clean with shredded wood fragments (frass) deposited outside of the nest.

All kinds of houses, from the newest to the oldest, may become infested. In cities, carpenter ants are usually found in wooded areas, but may also be found in crowded residential districts as well.

Guidelines for Reducing Damage

The most obvious sign of infestation is the presence of ants inside the house, especially in winter. Carpenter ants may remain active year-round in heated spaces, otherwise they become inactive in the winter. Other indications of infestation include piles of the sawdust-like frass expelled from small cracks or openings found in dark closets, under porches, along sills, or at the base of infested timbers (Figure 3). Carpenter ant frass can be distinguished from regular sawdust by the presence of fragments of ants and other insects mixed with the wood debris.

Prevention is the best control method; measures to prevent structural timbers from becoming wet may protect a house from infestation. Building sites and adjacent areas should be cleared of stumps and partially decayed logs. If possible, buildings should be positioned on concrete or masonry foundations or on treated timbers. Lumber, firewood, and debris should not be stored next



Figure 3. *Frass piles are evidence of carpenter ants.*

to the house or in basements and crawl spaces. Food, including pet food, should be kept in sealed containers.

The most important factor in carpenter ant control is locating the nest. Once the nest is found, control may be easy. Sometimes more than one colony is present in a structure or surrounding grounds, so a thorough inspection is very important. Once the nest is located, infested wood can be removed or chemically treated and the causes of moisture damage can be corrected.

Check with your local Cooperative Extension Service office for insecticides that are currently registered for carpenter ant control.

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Caution: Pesticides can be injurious to humans, domestic animals, desirable plants, and fish or other wildlife—if they are not handled or applied properly. Use all pesticides selectively and carefully. Since approved uses of a pesticide may change frequently, it is important to check the label for current approved and legal use.

Follow recommended practices for the disposal of surplus pesticides and pesticide containers. Mention of a pesticide in this publication does not constitute a recommendation for use by the USDA, nor does it imply registration of a product under Federal Insecticide, Fungicide, and Rodenticide Act, as amended. Mention of a proprietary product does not constitute an endorsement by the USDA.



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Carpenter Ants

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Additional information on this insect can be obtained from your local USDA Alaska Cooperative Extension office, Alaska State Forestry office, or from:

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